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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,362	08/25/2006	Jiansheng Fu	WHKY-00101-NUS	3176

33794 7590 10/29/2009  
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EXAMINER
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PARVINI, PEGAH

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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10/29/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/598,362	<b>Applicant(s)</b> FU ET AL.	
	<b>Examiner</b> PEGAH PARVINI	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-23 is/are pending in the application.
- 4a) Of the above claim(s) 18-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicants' election without traverse of Group I, claims 11-17, in the reply filed on July 6, 2009 is acknowledged.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 12-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 12-14, it is unclear as to what the thickness of each of the layers is supposed to be as the specification provides no guidance as to what the thickness is supposed to be.

Regarding claim 12, it is unclear as to what is meant by the phrase "the thickness of said first layer is between the optical thickness of the silver-white interference color and the optical thickness of the golden yellow interference color". That is, what exactly does the term "between" refer to? The phrases "the thickness", "the optical thickness", "the silver-white interference color", and "the golden yellow interference color" lack proper antecedent basis. Note that claim 11 makes no mention as to the presence of a silver white interference color or a golden yellow interference color and accordingly it is unclear as to the exact scope of the claim. Clarification is requested.

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Regarding claim 13, the phrases "the thickness", "the optical thickness" and "the 2nd order interference color" lack proper antecedent basis. Note that claim 11 makes no mention as to the presence of a 2nd order interference color and accordingly it is unclear as to the exact scope of the claim. Clarification is requested.

Regarding claim 14, it is unclear as to what is meant by the phrase "the thickness of said second layer is between the optical thickness of 2nd order green interference color and the optical thickness of the 4th order interference color". That is, what exactly does the term "between" refer to? The phrases "the thickness", "the optical thickness", and "the 4th order interference color" lack proper antecedent basis. The phrases "2nd order green interference color" and "the 4th order interference color" are not understood as claim 11 makes no reference to these interference colors so it is unclear as to what exactly applicant is trying to claim. Clarification is requested.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 11 and 15-16** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication No. 2002/0104461 to Schmidt et al.

Schmidt et al. teach multiply coated platelet-shaped substrates such as natural and/or synthetic mica comprising at least one layer sequence of a high refractive index

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material such as  $\text{TiO}_2$ , a colorless coating having a refractive index of less than 1.8 (i.e. low refractive index) such as  $\text{SiO}_2$  ([0009-[0013], [0024], claim 1), and an outer protective layer.

It is to be noted that based on the teachings of Schmidt et al., it is clear that the layers are placed onto each other and no other layers comes between them. Thus, the limitations drawn to layers being "in direct contact" as recited in the language of instant claims are considered to have been met.

**Claims 11 and 15-16** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,579,355 to Schmidt et al.

Schmidt et al. broadly teach multiply coated platelet-shaped substrates such as natural or synthetic mica coated with (A) a high refractive index layer such as  $\text{TiO}_2$ , then with (B) a colorless coating having a low refractive index and optionally (C), an outer protective layer (Abstract; column 2, lines 40-45; column 3, lines 44-48; column 3, lines 60-65). However, the reference makes it clear that the particular preference is given to a construction of three optical interference layers in the order of (A) (B) (A) and optionally (C) (column 3, lines 41-45). Therefore, the reference clearly anticipates the claimed invention by stating that "particular preference" in the construction of the layers is A+B+A+C.

In addition, the reference discloses  $\text{SiO}_2$  as a colorless low refractive index layer used (column 3, lines 60-65).

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It is to be noted that based on the teachings of Schmidt et al., it is clear that the layers are placed onto each other and no other layers comes between them. Thus, the limitations drawn to layers being "in direct contact" as recited in the language of instant claims are considered to have been met.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. ('355) as applied to claim 11 above, and further in view of U.S. Patent No. 4,482,389 to Franz et al.

Schmidt et al., as detailed above, disclose a multiply coated platelet-shaped substrate such as mica coated with TiO<sub>2</sub> and then SiO<sub>2</sub>, and further coated with a protective coating.

Schmidt et al. further discloses that in order to increase light, water and weather stability, it is frequently advisable, depending on the field of use, to subject the ready-produced pigment to an aftertreatment or aftercoating ([0030]). The reference, additionally, cites a number of references such as DE 3235017 (i.e. U.S. Pat. No. 4,483,389) for their useful aftercoatings or aftertreatments, and continues by making a reference to the protective coating disclosed in Schmidt et al., and discloses that this

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protective coating further enhances the chemical stability and/or facilitates the handling of the pigment, especially its incorporation into various media ([0030]).

However, Schmidt et al. do not expressly and literally point to a specific type of such aftercoatings or aftertreatments. Nevertheless, it would have been obvious to have utilized iron and/or manganese and chromium for such outer protective coating to enhance stability of the pigment wherein the outer protective coating is applied onto pigments comprising of mica substrates already coated with metal oxides as that taught by Franz et al. (Abstract; column 1, line 66 to column 2, lines 6) motivated by the fact that Schmidt et al. clearly points to Franz et al. reference (i.e. DE 3235017) as an example of some of the references teaching such aftercoatings or aftertreatments (i.e. protective coatings) over the pigments comprising of multiply coated mica substrates with metal oxides because said aftercoatings or aftertreatments increase and enhance the stability of the pigments and facilitate the handling of the pigments as that clearly taught by Schmidt et al. when referring to Franz et al. and other references. It is to be noted that the iron salt taught by Franz et al. is  $\text{FeSO}_4$  which can be found in the examples. Furthermore, Franz et al. is drawn to pigments having improved stability to weathering.

**Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. ('461) as applied to claim 11 above, and further in view of U.S. Patent No. 4,482,389 to Franz et al.

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Schmidt et al., as detailed above, disclose a multiply coated platelet-shaped substrate such as mica coated with coating of A+B+A+C wherein A is a high refractive index layer such as  $\text{TiO}_2$ , B is a low refractive index layer such as  $\text{SiO}_2$ , and C is an optional protective layer.

Schmidt et al. further discloses that in order to increase light, water and weather stability, it is frequently advisable, depending on the field of use, to subject the ready-produced pigment to an aftertreatment or aftercoating (column 4, lines 49-58). The reference, additionally, cites a number of references such as DE 3235017 (i.e. U.S. Pat. No. 4,483,389) for their useful aftercoatings or aftertreatments, and continues by making a reference to the protective coating disclosed in Schmidt et al., and discloses that this protective coating further enhances the chemical stability and/or facilitates the handling of the pigment, especially its incorporation into various media (column 4, lines 49-58).

Therefore, even though Schmidt et al. may not expressly and literally point to a specific type of such aftercoatings or aftertreatments, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have utilized iron and/or manganese and chromium for such outer protective coatings to enhance the stability of the pigment wherein the outer protective coating is applied onto pigments comprising of mica substrates already coated with metal oxides as that taught by Franz et al. (Abstract; column 1, line 66 to column 2, lines 6) motivated by the fact that Schmidt et al. clearly points to Franz et al. reference (i.e. DE 3235017) as an example of some of the references teaching such aftercoatings or aftertreatments (i.e. protective coatings)



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over the pigments comprising of multiply coated mica substrates with metal oxides because said aftercoatings or aftertreatments increase and enhance the stability of the pigments and facilitate the handling of the pigments as that clearly taught by Schmidt et al. when referring to Franz et al. and other references. It is to be noted that the iron salt taught by Franz et al. is  $\text{FeSO}_4$  which can be found in the examples. Furthermore, Franz et al. is drawn to pigments having improved stability to weathering.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegah Parvini/  
Examiner, Art Unit 1793

/Anthony J Green/  
Primary Examiner, Art Unit 1793